

### **ABSTRACT**

Structures and methods for fabricating high speed digital, analog, and combined digital/analog systems using planarized relaxed SiGe as the materials platform. The relaxed SiGe allows for a plethora of strained Si layers that possess enhanced electronic properties. By  
5 allowing the MOSFET channel to be either at the surface or buried, one can create high-speed digital and/or analog circuits. The planarization before the device epitaxial layers are deposited ensures a flat surface for state-of-the-art lithography.